

Food Security, Dietary Choices, and Television-Viewing Status of Preschool-Aged Children Living in Single-Parent or Two-Parent Households

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Over the past decades, the number of U.S. single-parent households has increased—particularly those headed by females (U.S. Census Bureau, 2001). In general, single-parent households have a lower household income than do other households and, consequently, tend to spend less money on food. As a result, single-parent households may be food insecure (Casey, Szeto, Lensing, Bogle, & Weber, 2001; Nord & Bickel, 2002).

In addition to changes in household structure over these decades, the prevalence of childhood overweight and obesity also increased (Ogden, Flegal, Carroll, & Johnson, 2002)—notably among low-income groups (Certain & Kahn, 2002)—and are a concern for several reasons, including their detrimental effects on children's quality of life and the potential increase in future health care costs. According to the National Health and Nutrition Examination Survey III (NHANES III), 7.2 percent of 2- to 5-year-old children were overweight between 1994 and 1998; according to Ogden and colleagues (2002), 10.4 percent were overweight. Also, sedentary lifestyle practices contribute to overweight among children (Crespo et al., 2001). Thus, we find that poor dietary intakes that do not comply with expert recommendations, combined with many hours of television viewing, are among the postulated reasons for the increase in

the prevalence of childhood overweight and obesity in the United States (Robinson, 1999).

The objectives of this study were to compare food security and economic status of households headed by females only (single-parent) and households headed by both a male and female (two-parent) and to examine whether children ages 2 to 5 in these households had different patterns of dietary intakes and television- and videotape-viewing practices. The findings would show whether children living in female-headed households have dietary and other behavioral characteristics that may promote childhood obesity.

Methods

We used data from the USDA's 1994-96 Continuing Survey of Food Intakes by Individuals (1994-96 CSFII) and the 1998 Supplemental Children's Survey (1998 CSFII) (U.S. Department of Agriculture [USDA], 2000). Both surveys include nationally representative samples: the 1994-96 CSFII includes persons of all ages, and the 1998 CSFII includes children from birth to 9 years. In these two surveys, dietary intake data are collected on 2 nonconsecutive days, 3 to 10 days apart (Tippett & Cypel, 1998), via a interviewer-administered 24-hour

recall that uses a multiple-pass technique to reduce underreporting. In the surveys, interviews for children under 6 years old are conducted with the adult household member (proxy) who is responsible for preparing the child's meals. Additionally, proxy interviews are conducted for respondents who cannot report for themselves because of physical or mental limitations. For our study, children were included if they were 2 to 5 years old and had complete food intake records on Day 1 of the survey. The children resided in single-parent, female-headed households or two-parent households headed by both a male and a female. The children ($n = 190$) who lived in male-headed households were excluded from this study because of the small sample size.

Children's mean food and nutrient intakes and television- and videotape-viewing behaviors were analyzed, as were household socioeconomic and demographic characteristics. Nutrients and food-group definitions in the analysis were the same as those in the 1994-96 CSFII (see box). Households that had enough of the kinds and quantities of foods they wanted to eat were considered "food secure"; households that either did not have enough food to eat or did not always have the kinds of foods they wanted to eat were considered "food insecure."

Money spent by households on groceries consisted of expenditures on store-bought foods plus prepared foods brought home from a grocery store's soup or salad bar or deli. Money spent on food away from home consisted of expenditures on prepared foods and beverages that were both bought and eaten away from home (e.g., food eaten at restaurants, fast-food places, work or school cafeterias, or foods and beverages from vending machines). Money spent per person per month for food was computed by dividing the total money spent for food

Definitions of Added Sugars and Food Groups

Added sugars includes sugars used as ingredients in processed or prepared foods, sugars eaten separately, and sugars added to foods at the table. Examples of foods and beverages containing added sugars are baked goods such as cakes, cookies, pastries and bread; dairy desserts; non-diet soft drinks; non-diet flavored drinks; and candies, jams, jellies, and syrups. Added sugars do not include sugars that are present naturally in foods, such as lactose in milk and fructose in fruits.

Whole milk includes whole fluid milk, low sodium whole milk, and reconstituted whole dry milk.

Lowfat and skim milk includes lowfat (1% and 2%) milk, skim or nonfat milk, lowfat or nonfat lactose-reduced fluid milk, and reconstituted lowfat and nonfat dry milk.

Frankfurters and sausages includes frankfurters, sausages; luncheon meats made from beef, pork, ham, veal, game, chicken, and turkey; and baby-food meat sticks.

Melons and berries includes cantaloupe, honeydew melon, watermelon, blueberries, blackberries, strawberries, raspberries, and cranberries.

Non-diet carbonated beverages and sweetened, fruit-flavored drinks includes all carbonated soft drinks except unsweetened and sugar-free types; all fruit drinks, fruit punches, fruit ades including those made from powdered mix and frozen concentrates and excludes low-calorie and low-sugar types. Excludes fruit juices.

by the household in a month by the total number of individuals in the household. No attempt was made to allocate money differently among adults and children within each household. *For this study, we discuss statistically significant ($p < 0.05$) differences only.*

The SUDAAN¹ software package was used to estimate percentages, means, and standard errors and to compare means of children living in households headed by a female with those living in households headed by both a male and female. The SAS² software package

was used to estimate socioeconomic and demographic characteristics of the children living in these two households.

Results and Discussion

Of the 5,594 children included in this study, 81 percent lived in two-parent households and 19 percent lived in female-headed households (table 1). About half (53 percent) of all African-American children lived in female-headed households. Children living in female-headed households were more likely to live in low-income (4 of 10 below 130 percent of poverty level) and urban (3 of 10) households, while children living in two-parent households were more likely to live in

¹SUDAAN for Solaris, release 8.0.1, 2002, Research Triangle Park, NC.

²SAS, release 8.2, 1999-2001, Cary, NC.

Table 1. Socioeconomic and demographic characteristics of children 2 to 5 years, 1994-96, 98 CSFII

Characteristics	Percentage of children in total population ¹	Percentage of children living in female-headed households ²
Gender		
Male	51.3	19.6
Female	48.7	18.7
Race/ethnicity		
Caucasian	61.8	10.3
African American	16.2	53.2
All Hispanics	16.3	20.2
Non-Hispanic, other races	5.7	15.2
Household income (% of poverty)		
Below 130%	31.4	44.5
131 to 350%	43.7	10.2
Above 350%	24.9	3.1
Urbanization		
Urban	32.2	30.0
Suburban	47.8	12.2
Rural	20.0	18.4
Region		
Northeast	19.2	20.3
Midwest	23.7	20.3
South	33.6	21.0
West	23.5	14.5

¹n = 5,594.

²n = 999.

Children from female-headed households, compared with those in male- and female-headed households, consumed higher amounts of high-fat foods such as whole milk and frankfurters and sausages, ate lower amounts of relatively expensive fruits such as melons and berries, and drank more non-diet carbonated beverages and sweetened fruit-flavored drinks.

affluent suburban households. Compared with other regions, the Western region of the United States had the lowest percentage of children living in female-headed households, about 15 percent versus 20 percent.

The three indicators of food-security status were strikingly different between the two household types. While 74 percent of children in two-parent households had enough of the kinds of foods they wanted to eat, only 56 percent of children in female-headed households were food secure (table 2). Compared with children in two-parent households, children in female-headed households tended not to have the kinds of food they wanted to eat

(37 percent vs. 24 percent) and not enough food to eat (7 percent vs. 2 percent). Female-headed households spent less money, per person, on monthly groceries, compared with two-parent households (\$87 vs. \$92). In addition, these households spent less money on foods purchased and eaten away from home, including food from fast-food places and restaurants (\$17 per person vs. \$26 per person). The amount of money spent on fast-food or carryout food brought into the house was not different (\$14 per person for both household groups).

The children in female-headed households consumed more energy than did children in male- and female-headed

households (1,642 kcal vs. 1,577 kcal) (table 3). Of these calories, higher amounts and proportions were from total fat and saturated fat. Whereas, children in female-headed households consumed 62 g of total fat (34 percent of calories) and 23 g of saturated fat (13 percent of calories), children in two-parent households consumed 56 g of total fat (32 percent of calories) and 21 g of saturated fat (12 percent of calories). Thus, our results showed that a smaller percentage of children in female-headed households met the recommendations of the Dietary Guidelines for total fat and saturated fat (USDA & DHHS, 2000).

Among the intake patterns that influenced differences in nutrient status were the following: Children from female-headed households, compared with those in male- and female-headed households, consumed higher amounts of high-fat foods such as whole milk and frankfurters and sausages, ate lower amounts of relatively expensive fruits such as melons and berries, and drank more non-diet carbonated beverages and sweetened fruit-flavored drinks.

For both household types, children's consumption of added sugars far exceeded the levels recommended in the Food Guide Pyramid (USDA, 1996). The Food Guide Pyramid's suggested levels of added sugars are 6, 12, and 18 teaspoons (24, 48, and 72 g) per 1,600, 2,200, and 2,800 calories of energy intakes per day. Because of the increase in the prevalence of childhood obesity, reducing intakes of foods and beverages that contain high amounts of added sugars and fat could help reduce intakes of empty, extra calories during childhood (Ludwig, Peterson, & Gortmaker, 2001). Soft drinks and fruit-flavored sugary drinks are the top sources of added sugars in the U.S. diet (Bowman, 1999).

Table 2. Food security status of and monthly expenditures by households with children 2 to 5 years, 1994-96, 98 CSFII

	Male- and female-headed household	Female-headed household
	<i>Percent</i>	
Having enough of the kinds of food they want to eat*	74	56
Having enough but not always the kinds of food they want to eat*	24	37
Sometimes or often not having enough to eat*	2	7
	<i>Mean dollars per person per month</i>	
Household groceries*	92	87
Food bought and eaten away from home*	26	17
Fast-food or carryout food brought into home	14	14

*Statistically different at $p < 0.05$.

Table 3. Mean energy, selected nutrients, food intake status, and hours of television- and videotape-viewing status of children 2 to 5 years, 1994-96, 98 CSFII

	Male- and female-headed household	Female-headed household
	<i>Mean</i>	
Energy (kcal)*	1,577	1,642
Total fat (g)*	56	62
Saturated fat (g)*	21	23
Carbohydrate (g)	218	218
Added sugars (g)	62	62
Protein (g)*	56	59
Percent of total fat calories*	32	34
Percent of saturated fat calories*	12	13
Percent of children having 30% or less energy from total fat ¹ *	40	32
Percent of children having 10% or less energy from saturated fat ¹ *	29	25
Whole milk (g)*	149	191
Lowfat and skim milk (g)*	188	114
Frankfurters and sausages (g)*	19	26
Melons and berries (g)*	14	7
Non-diet carbonated beverages and sweetened, fruit-flavored drinks (g)*	203	227
Number of hours of television/videotapes viewed*	2.5	3.0
Percent of children who viewed more than 2 hours of television/videotapes*	62	68

*Statistically different at $p < 0.05$.

¹Recommendations of the USDA's *Food Guide Pyramid* (1996) and *Dietary Guidelines for Americans* (2000).

Differences were also seen in television- and videotape-viewing behaviors between the two household groups. The children living in female, single-parent households watched more hours of television and videotapes, compared with children living in two-parent households (3.0 hours vs. 2.5 hours each day). Additionally, a higher percent of children in female-headed households (68 percent vs. 62 percent) watched more than a total of 2 hours per day. These findings are important because television viewing has been associated with weight status in children (Dennison, Erb, & Jenkins, 2002; Eisenmann, Bartes, & Wang, 2002; Robinson, 1999; Saelens et al., 2002).

Conclusions

Nutrition education for children continues to be necessary, especially for children living in female-headed households. In particular, our study demonstrated that children in these households had higher energy and fat intakes and watched more hours of television and videotapes per day than did children living in two-parent households, thus placing themselves at a higher risk for overweight or obesity. Efforts should be made to encourage lowfat food choices, especially in the dairy and meat groups. In addition, we observed that all children, regardless of the household type, consumed a lot of added sugars and drank a large amount of fruit-flavored drinks and non-diet carbonated beverages. Encouraging children to drink water or 100-percent juice, instead of sweetened, fruit-flavored beverages, would help reduce intakes of empty calories.

Nutrition for caregivers also may be beneficial because children's dietary behaviors are patterned after their

family's behaviors (Dennison et al., 2001; Fitzgibbon, Stolley, Dyer, Van Horn, & Kaufer-Christoffel, 2002; Eisenmann et al., 2002). Adults who prepare young children's food should choose lean cuts of meat and adopt lowfat food preparation techniques such as removing skin from chicken, trimming fat from meat, and encouraging children to drink lowfat milk. These

practices would help reduce consumption of both total and saturated fats. Interventions should also aim at reducing time spent viewing television or videotapes. Encouraging children to increase their physical activity may help prevent or reduce obesity. Therefore, early interventions with both children and their caregivers are important for preventing obesity later in life.

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